

of a high subsoil water on the malaria rate, but it was eventually agreed that "pukka" surface drainage and the lowering of high subsoil water level were anti-malarial measures of primary importance.

It is clear, then, that although failures are on record, and although finance may be a great difficulty, the permanent policy which is adopted is to drain, and, moreover, large drainage schemes may not always be prohibitive from their expense, as the sale of the land re-drained may defray the cost. Any particular scheme must, however, be well thought out, *after*—and this, in our opinion, is essential—the extent of malaria in the particular area has, as far as possible, been accurately estimated, and with the help of sanitary engineers the conditions determining the mortality minutely investigated. Then, and then only, can the effect of the scheme be accurately gauged in all its bearings, and "the devastating flood of recommendations" be checked by concrete facts.

We are, perhaps, in the habit of regarding malaria as an endemic rather than an epidemic disease, but a study of the conditions in India shows clearly that it has indeed terrible epidemic manifestations, such as occurred in the Punjab in 1908. We cannot discuss here the cause of these epidemics, but refer those interested to the report itself. We mention them here because it was said that if we could check epidemic "fulminant" malaria "we should have removed the most urgent and distressing effect of this disease, and those manifestations which the people themselves are most impressed by." A study of this question of epidemics impresses on us more than anything the magnitude of the problem to be dealt with, and the urgent need for re-study of the many problems of endemic and epidemic malaria. With regard to these epidemics, the opinion was expressed that they could probably be predicted, and that the only possible way of dealing with them was by the use of quinine.

The importance of quinine as a prophylactic measure cannot be overrated. We have the fact that this is the main method adopted by the Italians; we have the experience of Canada as related by Prof. Osler; the "marked success" of this method on the Panama Canal; and, indeed, we have the striking fact that the only successful prophylactic experiment presented to the conference was that carried out in the Punjab jails, where, by the administration of 15 grains of quinine once a week to each prisoner, the malaria death-rate was, with one exception, reduced to the lowest figure on record, and this during the great epidemic of 1908. That the quinine question, like the drainage question, requires very careful study, the papers read at the conference show. We hope, too, that the period of rivalry, if not of actual animosity, between the advocates of drainage and quinine has passed, though it must surely be admitted by those who are impartial, that quinine has at least one advantage, that it can be applied at once in many cases where drainage is completely impossible. The difficulties of the administration of quinine in India cannot, however, be overlooked.

We would conclude by pointing out the need also for "minor" measures, if we might call them so. An extended study is necessary of the numerous enemies of larvæ—fish, and a variety of predaceous insects, &c.—and of the complete inhibitory effect on larvæ of weeds such as Lemna. We would venture to suggest the appointment of one or more officers to study solely the "bionomics" of the mosquito in all its aspects. We would also urge the appointment of officers for the study of the various malarial problems already alluded to. We think, too, that officers

should visit Italy to study quinine prophylaxis there; and that the methods advocated by Major Ross in Mauritius, and those carried out in Panama, should also be studied on the spot.

Finally, there remains one method no less difficult, but one essential to the success of all the others, and that is the education of the people. That the Government has a many-sided and difficult problem before it is clear, but the problem has now been systematically taken up, and we feel confident that when the next malaria conference meets progress will be reported.

KENTISH BIRDS.¹

THE latest book on the "Birds of Kent"—the third to appear in recent years—is entitled, very appropriately, a history of the birds of the county. For the author, who has been sixteen years preparing this work, has given especial attention to the present and past status of all those species the distribution of which within the county is not quite general, and of those which have become rarer or more common, or have begun or ceased to breed within what we may term historic times, that is, since Kentish birds were first noticed by the older writers; and he has most carefully worked out chronologically the histories of fading and vanished species, as, for instance, the chough, raven, harrier, buzzard, kite, avocet, &c. In this connection we may, however, point out that too much importance must not be attached to the use of the word chough in Shakespeare's description of the cliff at Dover,

"The Crows and Choughs that wing the midway air,"

for there is evidence to show that the older writers must have often meant jackdaws when they wrote choughs. The name chough, indeed, seems to have been originally as generic as pie; and just as they distinguished the mag-pie and the jay-pie, so in time they distinguished the less-known chough as the Cornish chough. Happily, this history is not obliged to confine itself to dealing with the decreases of all the more interesting species, but can detail the increases of some, and point out the gratifying fact of some kinds of wild ducks and other birds breeding in increasing numbers. Of that little wader which has always been associated with the county—and may be called the county bird—viz. the Kentish plover, it is extremely satisfactory to read of the steady increase in the number of breeding pairs of late years. Here again we have an exhaustive and valuable article. Very interesting details, too, are given of the nesting of the golden oriole in four localities and in some of them for several years in succession. The present status of the Sandwich tern is set forth, and of the Dartford warbler (the third bird the name of which connects it with Kent) we learn with regret that it is now extinct in the county, its history therein being admirably drawn up. Exact information on these points has been wanting hitherto.

In his accounts of the different species, the author has found it necessary, in order to treat adequately of their history, status, distribution, migratory movement, and economic aspects, to confine his remarks strictly to these questions, and to omit all references to plumages, songs, general and nesting habits, and anecdotes, except in so far as these affect the other questions or offer peculiarities of themselves, or bear some particular relation to the environment of the species in the county. Even so the volume is bulky,

¹ "A History of the Birds of Kent." By Norman F. Ticehurst. Pp. lvi + 568. (London: Witherby and Co., 1909.) Price 21s. net.

and if the omission of these lighter matters make the book less fascinating to read than some others, it detracts nothing from its solid worth. Beginning with a bibliography, the volume contains an introduction of twenty-seven pages, dealing with the topography, geology, rivers, vegetation, avifauna, migration, museums, and collections of and in the county, and of the former authors on the subject. Then follows the detailed account of each species on the lines indicated. Excluding forty-two "doubtful species," which are included in square brackets, these number 312; 107 birds breed regularly in Kent, thirteen have bred only once or on very rare occasions, and fifteen formerly bred and have ceased to do so.

Kent has of late years produced an extraordinary number of rare birds, accidental visitors to these shores, several of them having been "new" to the

season is a little disquieting, and seems to require attention. Not that we suggest for one moment that the shooting of these stray wanderers—far out of their usual range of distribution—does a tittle of harm to the respective species, or that their reaching the hands of the critical ornithologist serves any but a good purpose. But at the same time the habit—unchecked, it would appear—of shooting on marsh and shore in the breeding season is essentially a bad and harmful one, and in the case of irresponsible people may easily lead to the death of breeding wildfowl or waders.

Among the many wonders of migration overseas is the fact disclosed in this volume of rare birds from remote countries arriving, not only singly, but in pairs and small parties. Thus two snow-finches (a sedentary species living in the Alps) were shot from a party of five; three white-winged larks observed



The "Hoppen Pits," Dungeness. Breeding Haunt of Black-headed Gulls, Moor-hens, Reed-warblers, &c. From "A History of the Birds of Kent."

British list; and in reading the pages of this volume one is impressed with the enormous importance in the compilation of a long county list of rare birds of the existence on the spot of a bird-stuffer always on the look-out for a rare bird, and ready to offer it for the inspection of the trained ornithologist; for it is to be noticed that nearly all these rarities which have apparently been pouring like a stream upon the shores of Kent in the last few years have passed through the hands of one bird-stuffer. Another point which will strike the reader is the sharp eye for a rare bird possessed by some of the Kentish men—more than one great rarity has been secured by shepherds, and most of them by people who were ready to part with them—for we should be loth to think that these gunners shoot all and sundry that come within range on the chance of getting a good bird. At the same time, this apparent habit of men with guns patrolling the county during May and other parts of the close

together, and all secured, and three black larks (new to our list) out of five. So, too, sandpipers from America come not only singly, pairs of the solitary and spotted sandpipers being here recorded. In some years there has been quite an American invasion. In July, 1908, examples of the solitary, pectoral, and Bartram's sandpiper occurred; and 1906 produced both Bonaparte's and the pectoral sandpipers.

The twenty-four plates comprise reproductions of the plates in old books of Kentish specimens, some modern Kentish rarities, and nesting sites and bits of Kentish scenery, the typical haunts in the county of various species. These are very pleasing and appropriate to the objects of the book. By permission of the publishers we are enabled to reproduce one of the illustrations. There is also a good map at the end of the volume, which is nicely got up and well printed on good unglossed paper, so that, despite its bulk, the book is not very heavy.